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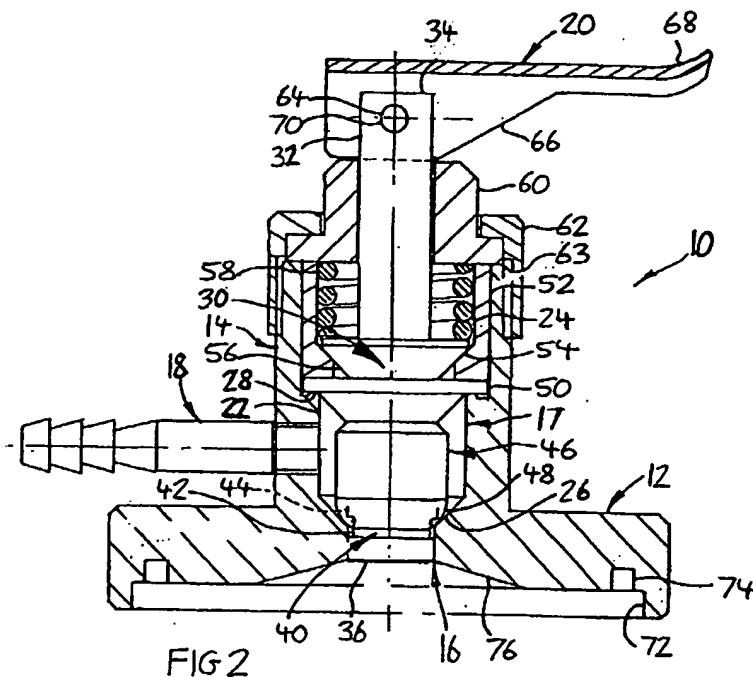
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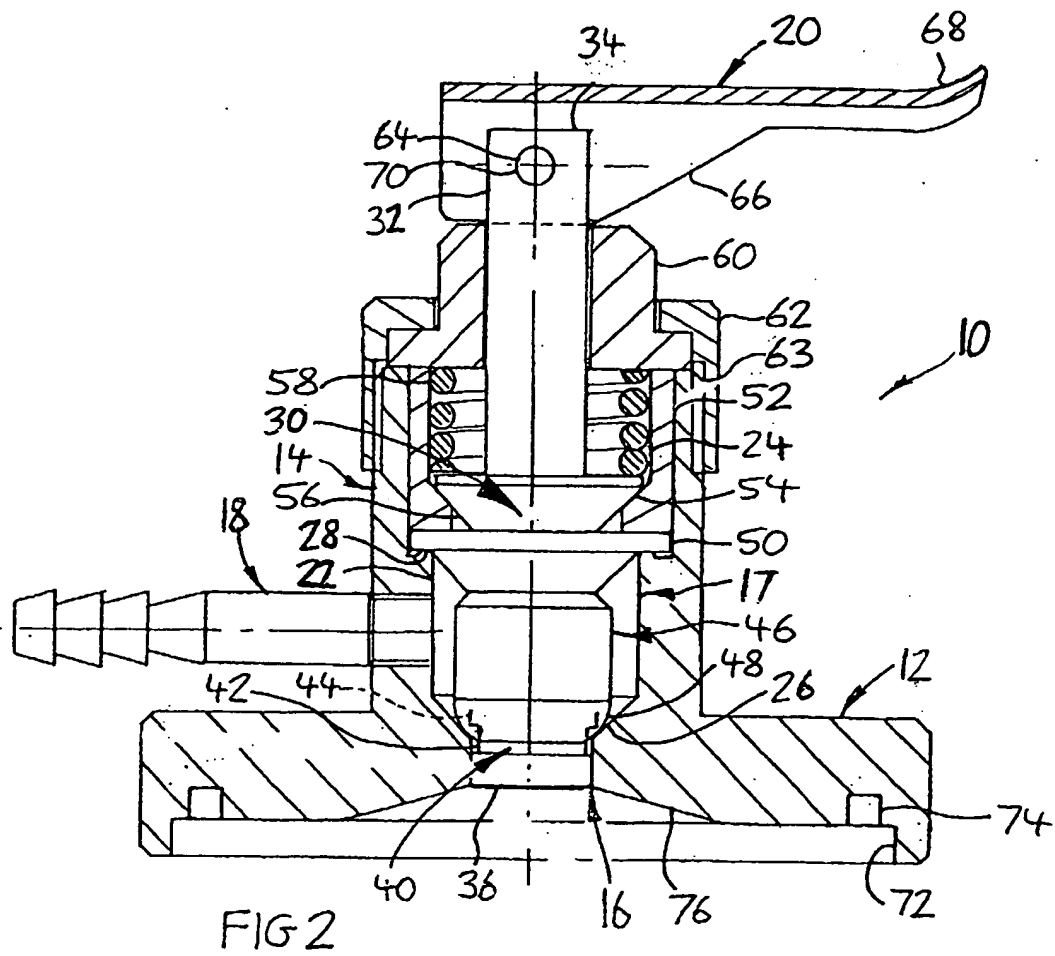
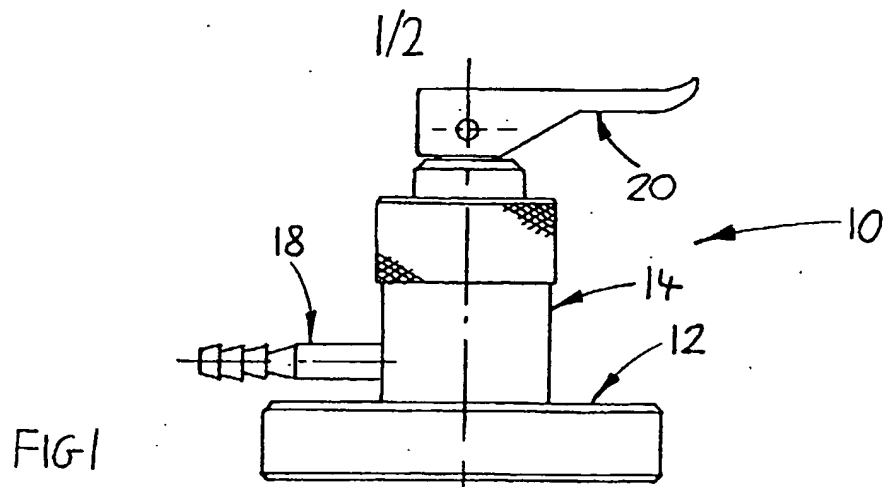
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(54) Abstract Title
Vent valve device for a fob detector

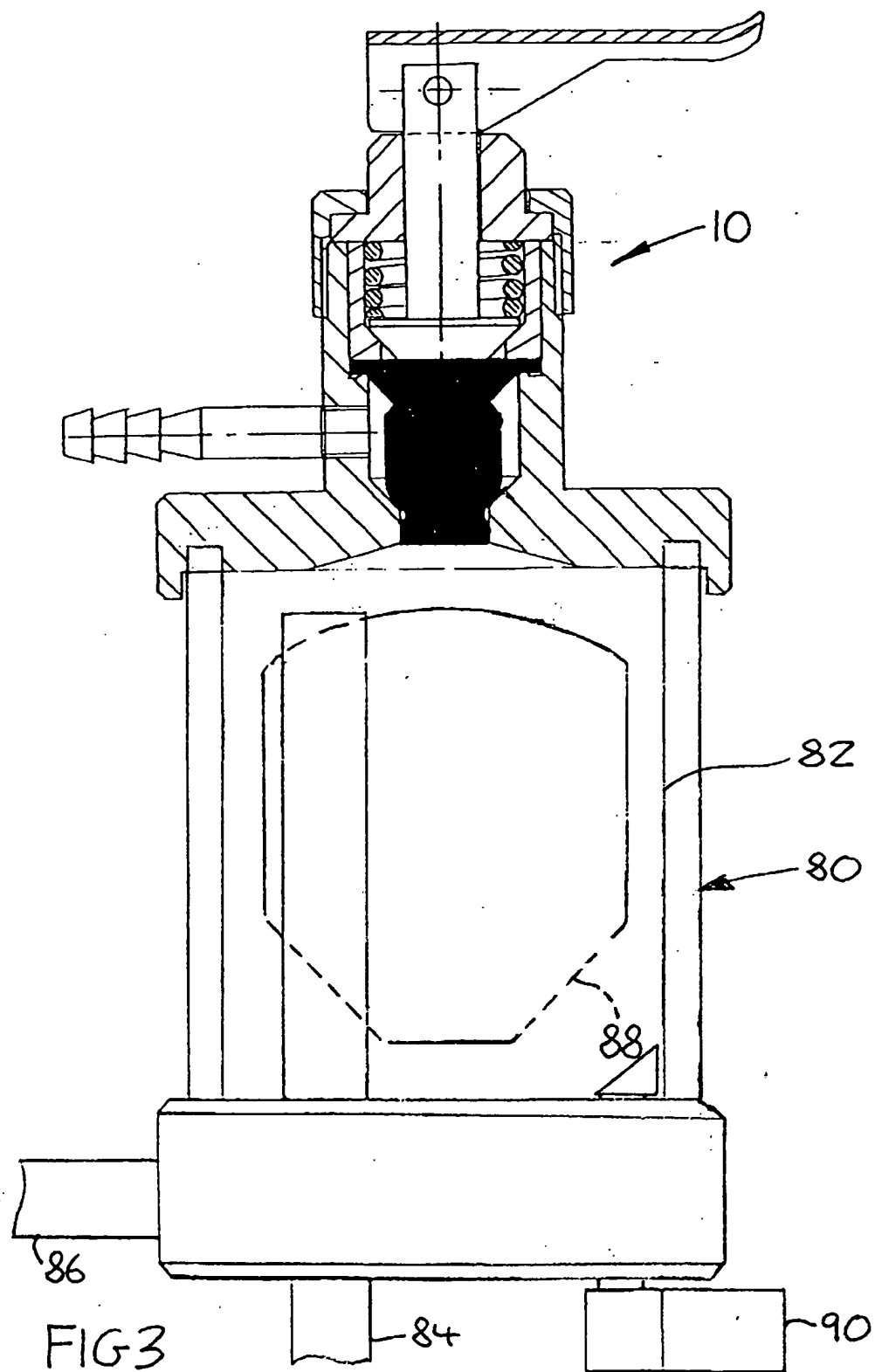
(57) A vent valve device 10 for a fob detector (80, Fig. 3) comprises an inlet 16 and an outlet 18. The inlet 16, in use, is in fluid communication with a chamber (82) of the fob detector. A valve head 46 is provided which is moveable against a valve seat 26 to close the inlet 16. A spring 58 biases the valve head 46 against the valve seat 26. The vent valve device 10 comprises a handle 20 for moving the valve head 46 away from the valve seat 26. The device 10 also allows the valve head 46 to automatically move away from the valve seat 26 due to pressure inside the chamber (82) of the fob detector 80 when said pressure inside said chamber (82) exceeds a predetermined value. Removal of closure 60, retaining sleeve 62 and valve assembly 30 permits attachment of cleaning means to threaded section 63 of housing 14.



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VENT VALVE DEVICE FOR A FOB DETECTOR

The present invention relates to a vent valve device for a fob detector.

When a pressurised container from which draft beer is dispensed is nearly empty there is a build up of fob or froth. The fob must be cleared from the dispensing system before the next beer container is connected in place in the system. For this purpose it is known to use a fob detector in the beer line between the container and the point of dispensation, i.e the tap on the bar.

One type of known fob detector comprises a chamber having an inlet for receiving liquid beverage under pressure from a container and an outlet for discharging the liquid, and a vent aperture for venting excess gas from the chamber. Inside the chamber a float is arranged to be moveable in relation to the outlet. The float is buoyant in the liquid beverage but not in the froth. Consequently, the float seals the outlet when the chamber is empty or substantially empty of liquid beverage. Once the float is in this position, a handle is provided to lift the float away from the outlet when the main chamber has refilled with liquid. The chamber has a vent communicable with the top of the chamber and closeable by a closure forming part of a vent valve unit which is in screw threaded engagement with the top of the chamber. This vent valve unit is normally kept closed. When a fresh beer container is connected to the inlet, the vent valve unit is opened manually to release pressure from inside the chamber.

One problem of the known vent valve is that the passage between said vent valve and fob detector i.e. that which allows gas escape, is very small, typically two or three millimetres in diameter. While a passage of that size is

acceptable to release gas from the fob detector, it is too small to allow a high flow rate of liquid such as that necessary for jet cleaning therethrough.

Another problem of the known kind of vent valve is that it must be used in conjunction with a separate lid for a fob detector. The attachment of the two parts involves additional parts and takes time and effort in manufacture and assembly.

An object of the invention is to provide an improved and/or easier to use vent valve for a fob detector.

According to a first aspect of the invention there is provided a vent valve device for a fob detector, the vent valve device comprising;

an inlet and an outlet, the inlet being arrangeable in fluid communication with a chamber of the fob detector when the vent valve device is connected thereto,

a valve head movable against a valve seat to close the inlet,

a spring which biases the valve head against the valve seat, and

a manual valve operating means for moving the valve head away from the valve seat, wherein the valve head is arranged automatically to move away from the valve seat due to pressure inside a chamber of a fob detector when said pressure exceeds a predetermined value.

Preferably, the vent valve comprises an integral lid for a fob detector chamber.

According to a second aspect of the invention there is provided a vent valve device for a fob detector, the vent valve device comprising a single piece which provides a housing for a vent valve and a lid for said fob detector.

Preferably, where the manual valve operating means comprises a valve stem having the valve head at a first end and a handle at a second end, the handle has an inclined portion remote from the valve stem, and the inclined portion is inclined away from the direction of manual operation used to open said valve.

Preferably, the spring is designed such that the valve head moves away from the valve seat at a pressure of greater than 100 PSI.

Most preferably, the spring is designed such that the valve head moves away from the valve seat at about 110 PSI.

Preferably, part of the valve head is fixed and part of the valve head is movable to and from the valve seat.

Preferably, the valve head comprises a resilient material.

Preferably, where the manual valve operating means comprises a valve stem, the valve head being mounted on the valve stem.

Preferably, part of the valve head cups a projection on the valve stem, most preferably, an annular lip cups an annular projection.

Preferably, a recessed portion lies adjacent to the annular projection to enhance fluid flow.

Preferably, the inlet is greater than 1 cm ²

Preferably, a housing of the vent valve device has a means for allowing attachment of a cleaning adapter.

Preferably, the means for allowing attachment of a cleaning adapter comprises a threaded section.

Preferably, the threaded section is 2-4 cm in inner diameter.

According to a further aspect of the invention there is provided a vent valve device according to the first aspect or second aspect having or any preferred feature thereof and having a fob detector fitted thereto.

According to yet a further aspect of the invention there is provided a lid for a fob detector comprising a wall having an outlet therethrough, and a valve assembly comprising a closure for opening and closing the outlet which valve assembly comprises a flange connected to the wall which flange comprises attaching means for attaching the closure to the lid, wherein the attaching means enables attachment of a separate pipe, such as for ingress of cleaning fluid, to be attached to the fob detector when the closure is removed.

A vent valve device for a fob detector according to the invention will now be described with reference to the accompanying drawings, in which,

Figure 1 is a side view of a vent valve device in accordance with the invention,

Figure 2 is another side of the vent valve device of Figure 1 shown partly in cross section, and

Figure 3 is a view, partly in cross section, of the vent valve device of Figure 1 in assembly on a fob detector.

Referring to Figure 1, a vent valve 10 comprises an integrated lid 12 for a fob detector and a housing 14, preferably in the form of a barrel. The housing 14 comprises an inlet aperture 16 to a chamber 17 and a vent outlet 18 from said chamber.

The chamber 17 comprises a first chamber part 22 and a second chamber part 24. The second chamber part 24 is wider than the first chamber part 22.

The first chamber part 22 defines a valve seat 26. A shoulder 28 is provided between the first chamber part 22 and the second chamber part 24.

The vent valve 10 comprises a valve assembly 30.

Referring to Figure 2, the valve assembly 30 comprises a valve stem 32 having a first end 34 and a second end 36. The second end 36 of the valve stem 32 has a valve head locator means 40. The valve head locator means 40 is preferably in the form of a reduced diameter portion e.g. an annular groove 42 in a valve stem 32 of cylindrical form.

A valve head 46 of elastomeric material such as rubber, is provided. A bore (not shown) in the valve head 46 allows said valve head to locate on valve stem 28, specifically on the valve head locator means 40. A lip 48 of the valve head 46 locates in the annular groove 42. That arrangement provides a bottom of "bowl-like" form which locates moveably above the valve seat 26. The valve head 46 has a collar 50 which locates on the shoulder 28.

A retaining wall is provided which slides into the chamber 18, and specifically onto the collar 50. The retaining wall 52 defines a second seat 54.

The valve stem 32 carries an auxiliary seal 56. The auxiliary seal 56 is located such that it is moveable above the second seat 54 as shown in Figure 2.

The valve assembly 30 further comprises a spring 58 (preferably helical compression type). The spring 58 slideably locates over the valve stem 32 above the auxiliary seal 56 as shown in Figure 2.

A closure member 60, preferably of annular form is provided. The closure member 60 is arranged above the retaining wall 52 as shown in Figure 2. A locking member 62 in the form of a sleeve is also provided. The locking member 62 has a threaded section 63 which co-operates with a corresponding threaded surface (not shown) on barrel housing 14. Furthermore, the locking member 62 has a rough or a nut-like outer surface that allows an operator to remove the locking member 62 or attach the locking member quickly and easily.

The vent valve 10 also comprises a handle 20. The handle 20 has an aperture (not shown). A pin 64 is passed through said aperture in the handle and through an aperture (not shown) in the valve stem 32. The handle 20 has an

inclined surface 66 and a kinked tip 68. The kinked tip 68 tends to resist slip of the user's hand while operating the device.

The lid 12 has a recess 72 arranged to receive part of a fob detector chamber.

During assembly, the vent valve device 10 is fitted to a fob detector 80 as shown in Figure 3. The fob detector 80 comprises a chamber 82, an inlet 84 and an outlet 86. The inlet 84 is connected by a beer line (not shown) to a pressurised beer keg (not shown). The outlet 86 is connected by a further beer line (not shown) to a tap (not shown) at which the beer is dispensed. The fob detector 80 also comprises a float 88. The Float 88 is arranged to move such that it seals or opens the beer line. A float actuator 90 is provided so that when float 88 seals the beer line the float actuator 90 can be actuated to lift the float 88 into a position whereby the beer line is again unbroken.

In use, when a new beer keg (not shown) is fitted to the inlet 84 there is a surge in internal pressure of the chamber 82. The pressure tends to lift the valve head 46 away from its seat 26 so that gas may flow into the inlet aperture 16 through the chamber 17 and through the vent outlet 18. The vent valve device and fob detector are designed to tolerate pressures of up to around 110 PSI, that being the pressure at which the valve head 46 is lifted away from its seat 26.

Where a user desires to operate the vent valve device 10 one can simply press the handle 20 downward to lift the stem 32 and valve head 46 respectively. upon release of the handle 20 the spring 58 biases the stem downward and closes the valve head 46 against the valve seat 26.

When it is necessary to clean the vent valve device due to build up of beer and sediment, the valve assembly 30 is removed from the housing 14. A cleaning adapter (not shown) is attached to the threaded section 63 and cleaning apparatus such as a jet cleaning device pumps liquid through the vent valve 10 at high speed. It will be appreciated that the large size of the inlet aperture 16 allows a high flow rate of liquid there through.

Claims

1. A vent valve device for a fob detector, the vent valve device comprising;

an inlet and an outlet, the inlet being arrangeable in fluid communication with a chamber of the fob detector when the vent valve device is connected thereto,

a valve head movable against a valve seat to close the inlet, said valve seat facing away from the chamber,

a spring which biases the valve head against the valve seat, and

a manual valve operating means for moving the valve head away from the valve seat, wherein the valve head is arranged automatically to move away from the valve seat due to pressure inside a chamber of a fob detector when said pressure exceeds a predetermined value.
2. A vent valve device according to Claim 1, wherein the vent valve comprises an integral lid for a fob detector chamber.
3. A vent valve device for a fob detector, wherein one piece provides a housing for the vent valve and a lid for a fob detector.
4. A vent valve device according to Claim 2 or 3, and where the manual valve operating means comprises a valve stem having the valve head at a first end and at a second end a handle, the handle having an inclined portion remote

from the valve stem, the inclined portion being inclined away from the direction of manual operation.

5. A vent valve device according to any preceding claim, wherein the spring is designed such that the valve head moves away from the valve seat at a pressure of greater than 100 PSI.

6. A vent valve device according to Claim 5, wherein the spring is such that the valve head moves away from the valve seat at about 110 PSI.

7. A vent valve device according to any preceding claim, wherein part of the valve head is fixed and part of the valve head is movable to and from the valve seat.

8. A vent valve device according to any preceding claim, wherein the valve head comprises a resilient material.

9. A vent valve device according to Claim 8 and where the manual valve operating means comprises a valve stem, the valve head being mounted on the valve stem.

10. A vent valve device according to Claim 9, wherein part of the valve head cups a projection on the valve stem.

11. A vent valve device according to Claim 10, wherein an annular lip cups an annular projection.

12. A vent valve device according to Claim 11, wherein a recessed portion lies adjacent to the annular projection to enhance fluid flow.

13. A vent valve device according to any preceding claim, wherein the inlet is greater than 1 cm ².
14. A vent valve device according to any preceding claim, wherein a housing of the vent valve device has a means for allowing attachment of a cleaning adapter.
15. A vent valve device according to Claim 14, wherein the means for allowing attachment of a cleaning adapter comprises a threaded section.
16. A vent valve device according to Claim 15, wherein the threaded section is 2-4 cm in diameter.
17. A vent valve device substantially as described herein and with reference to Figures 1 and 2 of the accompanying drawings.
18. A vent valve device according to any preceding claim having a fob detector fitted thereto.
19. A vent valve device and fob detector substantially as described herein and with reference to Figure 3 of the drawings.
20. A lid for a fob detector comprising a wall having an outlet therethrough, and a valve assembly comprising a closure for opening and closing the outlet which when assembled comprises a flange cemented to the wall which flange comprises attaching means for attaching the closure to the lid wherein the attaching means enables attachment of a separate pipe, such as for cleaning fluid, to be attached to the fob detector when the closure is removed.



INVESTOR IN PEOPLE

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Claims searched: 1 and 4-16

Examiner: Peter Squire
Date of search: 18 October 2001

Patents Act 1977 Search Report under Section 17

Databases searched:

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UK CI (Ed.S): F2V VS1 VS41 VV14 VV15

Int CI (Ed.7): F16K 17/04, 168 24/00, 02, 04 B67D 1/12

Other: Online: WPI, EPODOC, JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2203820 A (Braathen) see e.g. page 4 lines 18-22 and page 5 lines 3-10	1, 5-9, 14, 15
X	GB 0922362 (Nordiska Armatur-Fabrikerna) see whole document	1, 8, 9
X	GB 0815376 (Tolman) see e.g. page 2 lines 76-95	1, 8, 9, 14, 15
X	US 4103704 (Richards) see e.g. col.3 line 61-65 and col.4 lines 19-25	1, 8, 9, 14, 15
X	US 3945607 (Dashner) see Figures 3 and 4	1, 7-9, 13

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